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09/294,563	04/20/1999	KURT E. SCHMIDT	08640/018001	6271

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EXAMINER
NGUYEN, DUC MINH

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/294,563	Applicant(s) SCHMIDT ET AL.	
	Examiner Duc Nguyen	Art Unit 2643	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19,21-24,26,27,30,31 and 34-57* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *46-57* is/are allowed.

6)☒ Claim(s) *1-19, 21-24, 26-27, 30-31, 34-45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of claims 53-57 of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless --
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371© of this title before the invention thereof by the applicant for patent.

3. Claims 1-3, 34-35, 40-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Lechleider et al (6,091,713).

Consider claims 1-2, 34. Lechleider teaches a method of predicting performance of a customer line for data transmission, comprising measuring electrical properties of the customer line from a central location (150 and 190; col. 5, ln. 43 to col. 7, ln. 24); identifying a line model for the customer line from the measurements (i.e., loop characteristics; col. 5, ln. 43 to col. 7, ln. 24; col. 8, ln. 17-22); identifying a modem model for a modem selected for use with the line, the modem model providing performance data on the selected modem (e.g., modem information; col. 7, ln. 24-39; col. 9, ln. 57 to col. 10, ln. 18); and predicting performance data for the customer

line when operated with the selected modem by combining the line and modem models (col. 7, ln. 16-23; col. 9, ln. 57 to col. 10, ln. 18).

Consider claims 3, 35. Lechleider further inherently teaches selectively offering the high speed service to at least a portion of the customers having lines qualified to support high speed digital service.

Consider claims 11, 40. Lechleider further teaches the modem model indexes predicted data rates by an averaged normalized line length (col. 1, ln. 57-65; col. 8, ln. 41 to col. 9, ln. 34) and a noise level of the customer line (col. 5, ln. 43 to col. 6, ln. 29; col. 6, ln. 54 to col. 7, ln. 23; col. 8, ln. 17-22).

Consider claim 41. Lechleider further teaches the information collected by the modems (103) and (113) may be used for synthesizing the subscriber local loop (130) structure that approximates a set of measured loop characteristics (col. 8, ln. 41-45).

Consider claim 42. Lechleider further teaches the parameters are selected from the group consisting of noise, echo compensation and phase instability compensation (col. 6, ln. 3-29).

Consider claim 43. Lechleider further teaches performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 4, 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Beierle (6,084,946).

Consider claims 4, 36. Lechleider does not teach that the act of measuring includes using the measurements to evaluate at least one admittance of the customer line at a plurality of frequencies.

Beierle teaches that the act of measuring includes using the measurements to evaluate at least one admittance of the customer line at a plurality of frequencies (see fig. 3).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Beierle into the teachings of Lechleider in order to provide reliable results irrespective of whether terminal equipment is installed on the telephone line.

6. Claim 5, 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Beierle (6,084,946) as applied to claims 1, 4, 34, 36 above, and further in view of Nagato (5,400,321).

Consider claims 5, 37. Lechleider in view of Beierle does not clearly teach that the act of measuring includes finding at least of Y_{tr}, Y_{rg} and Y_{tg} for the customer line.

Nagato teaches the act of measuring includes finding at least of Y_{tr}, Y_{rg} and Y_{tg} for the customer line (see fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Nagato into the teachings of Lechleider in view of Beierle in order to accurately and remotely detect a fault on a subscriber line.

7. Claim 6, 8-10, 38-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Beierle (6,084,946) and Nagato (5,400,321) as applied to claims 1, 4-5, 34-36 above, and further in view of Bjork et al (5,128,619).

Consider claims 6, 38-39. Lechleider in view of Beierle and Nagato does not explicitly teach determining a frequency dependent attenuation from the admittance; and determining a normalized length from the frequency dependent attenuation.

Bjork teaches determining a frequency dependent attenuation from the admittance (col. 4, ln. 3-39); and determining a normalized length from the frequency dependent attenuation (col. 3, ln. 24-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Bjork the teachings of Lechleider in view of Beierle and Nagato in order to provide a test apparatus for testing cable for digital applications from one end of the cable, so as to eliminate additional personnel and reduce cost associated with determining the quality of the communication cable.

Consider claim 8. Bjork further teaches determining a frequency dependent attenuation from the admittance (col. 4, ln. 3-39).

Consider claim 9. Beierle further teaches that the act of measuring includes using the measurements to evaluate at least one admittance of the customer line at a plurality of frequencies (see fig. 3; col. 5, ln. 29-55); and evaluating a property of the customer line for high frequencies with respect to the frequencies of the signal (xDSL band; col. 8, ln. 30-36).

Consider claim 10. Beierle further teaches that the act of measuring includes using the measurements to evaluate at least one admittance of the customer line at a plurality of frequencies (see fig. 3).

8. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Beierle (6,084,946) as applied to claims 1, 4 above, and further in view of Peoples (4,087,657).

Consider claim 7. Lechleider in view of Beierle does not explicitly teach determining whether the customer line has a bridged tap.

Peoples teaches determining whether the customer line has a bridged tap (see fig. 8A-B).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Peoples into the teachings of Lechleider in view of Beierle in order to reduce the sill and time required to identify the parameters of an inductively loaded transmission line.

9. Claims 12-13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713).

Consider claim 12. Lechleider teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information of a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5, ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (e.g., based on this predicted performance a network service provider is able to efficiently determine the viability of deploying ADSL to a subscriber and, in turn, determine the viability of deploying ADSL in entire areas by creating an ADSL-ready consumer-lead list, see the abstract; processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user

in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use information of a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop in order to reduce the testing time.

Consider claim 13. Lechleider further teaches a method of predicting performance of a customer line for data transmission, comprising measuring electrical properties of the customer line from a central location (col. 5, ln. 43 to col. 7, ln. 24); identifying a line model for the customer line from the measurements (i.e., loop characteristics; col. 5, ln. 43 to col. 7, ln. 24; col. 8, ln. 17-22); identifying a modem model for a modem selected for use with the line, the modem model providing performance data on the selected modem (e.g., modem information; col. 7, ln. 24-39; col. 9, ln. 57 to col. 10, ln. 18); and predicting performance data for the customer line when operated with the selected modem by combining the line and modem models (col. 7, ln. 16-23; col. 9, ln. 57 to col. 10, ln. 18).

Consider claim 18. Lechleider further teaches the modem model indexes predicted data rates by an averaged normalized line length (col. 1, ln. 57-65; col. 8, ln. 41 to col. 9, ln. 34) and a noise level of the customer line (col. 5, ln. 43 to col. 6, ln. 29; col. 6, ln. 54 to col. 7, ln. 23; col. 8, ln. 17-22).

10. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Nagato (5,400,321).

Consider claim 14. Lechleider does not clearly teach that the act of measuring includes finding at least of Y_{tr}, Y_{rg} and Y_{tg} for the customer line.

Nagato teaches the act of measuring includes finding at least of Y_{tr}, Y_{rg} and Y_{tg} for the customer line (see fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Nagato into the teachings of Lechleider in order to accurately and remotely detect a fault on a subscriber line.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Nagato (5,400,321) as applied to claims 12-14 above, and further in view of Peoples (4,087,657).

Consider claim 15. Lechleider in view of Nagato does not explicitly teach determining whether the customer line has a bridged tap.

Peoples teaches determining whether the customer line has a bridged tap (see fig. 8A-B).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Peoples into the teachings of Lechleider in view of Nagato in order to reduce the sill and time required to identify the parameters of an inductively loaded transmission line.

12. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Nagato (5,400,321) as applied to claims 12-14 above, and further in view of Bjork et al (5,128,619).

Consider claim 16. Lechleider in view of Nagato does not explicitly teach determining a frequency dependent attenuation from the admittance.

Bjork teaches determining a frequency dependent attenuation from the admittance (col. 4, ln. 3-39); and determining a normalized length from the frequency dependent attenuation (col. 3, ln. 24-30).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Bjork the teachings of Lechleider in view of Nagato in order to provide a test apparatus for testing cable for digital applications from one end of the cable, so as to eliminate additional personnel and reduce cost associated with determining the quality of the communication cable.

13. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Beierle (6,084,946).

Consider claim 17. Lechleider does not explicitly teach the act of measuring includes using the measurements to evaluate at least one admittance of the customer line at a plurality of frequencies; and evaluating a property of the customer line for high frequencies with respect to the frequencies of the signal.

Beierle further teaches that the act of measuring includes using the measurements to evaluate at least one admittance of the customer line at a plurality of frequencies (see fig. 3; col. 5, ln. 29-55); and evaluating a property of the customer line for high frequencies with respect to the frequencies of the signal (col. 8, ln. 30-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Beierle into the teachings of Lechleider in order to provide reliable results irrespective of whether terminal equipment is installed on the telephone line.

14. Claims 19, 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lechleider et al (6,091,713) in view of Burgess (6,111,861).

Consider claim 19. Lechleider teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information of a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5, ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all

the user in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use information of a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop in order to reduce the testing time.

Lechleider does not explicitly teach determining whether the line at issue is billed as a high speed analog data line or an analog voice (or low speed analog data) line.

Burgess teaches determining whether the line at issue is billed as a high speed analog data line or an analog voice (or low speed analog data) line (col. 10, ln. 21-63).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Burgess into the teachings of Lechleider, so that appropriate charging rate can be accurately applied to the communication connection.

Consider claim 21. Lechleider inherently teaches the limitations of this claim in (col. 5, ln. 43 to col. 6, ln. 50).

Consider claim 22. Lechleider further teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information of a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5, ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and

predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user in a particular town; col. 3, ln. 50-59; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22).

Consider claim 23. Lechleider further inherently teaches selectively offering the high speed service to at least a portion of the customers having lines qualified to support high speed digital service.

15. Claims 24, 26-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eichen et al (6,292,539) in view of Lechleider et al (6,091,713).

Consider claims 24, 26. Eichen teaches a method of marketing telephone lines to customers, comprising speed pre-qualifying a plurality of customer lines from one-ended electrical measurements, the speed pre-qualifying including classifying the lines for at least high speed digital service or low speed digital service (see the entire abstract; col. 3, ln. 6-21; col. 4, ln. 59 to col. 7, ln. 30; especially, col. 5, ln. 22-33; col.6, ln. 25-60; col. 1, ln. 20-41). Eichen further inherently teaches selectively offering the high speed service to at least a portion of the customers having lines qualified to support high speed digital service. Eichen further inherently teaches the test unit is switchably connected to the plurality of customer lines, since the testing process is performed based on an unique identifier, i.e., a telephone directory number, or any other unique identifier such as an IP address or a circuit identifier (col. 4, ln. 59 to col. 5, ln. 8).

Eichen does not explicitly teach predicting the data rate for the customer line from the measurements.

Lechleider teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information from a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5, ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22; col. 9, ln. 57 to col. 10, ln. 18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Lechleider into the teachings of Eichen in order to reduce the testing time.

Consider claim 27. Lechleider further teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information from a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5, ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing

one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22).

16. Claims 30-31, 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beierle (6,084,946) incorporated with Harris Model 105A in view of Bjork et al (5,128,619) and Lechleider et al (6,091,713).

Consider claim 31. Beierle incorporated with Harris Model 105A teaches a system for characterizing performance of customer lines for data transmission, comprising a computer (e.g., model 105A and model 107A/F funnel data to larger computer systems so the data can be organized and analyzed, see page 8); a telephone switch (see page 7, MODEL 105A/107A/F description) coupled to a portion of the lines and adapted to connect the portion to a network, to perform one-ended electrical measurements on the portion, and to transmit the measurement to the computer (see diagram D; see page 7); a measurement unit (model 105A) coupled to the switch and the computer (see diagram D), the unit to make the measurements on a selected line at a lower frequency (Beierle, 20-30 Hz; col. 2, ln. 47-58) in response to receiving a command from the computer (e.g., it (model 105A) may be operated remotely from a terminal, or accessed by a technician from the field; see page 7), the computer to predict data rates at a higher frequency for

the selected line from the measurement (typically, Plain Old Telephone Service (POTS) exists in the 0-4 kHz region, an exemplary xDSL service may be present from 25 kHz to approximately 2.2 MHZ, depending on the definition of "x"), the computer being further adapted to predict whether the selected line is disqualified for data transmission from the measurements thereon (it (model 105A) can also pre-qualify lines for new services, such as ISDN and XDSL; see page 7).

Beierle incorporated with Harris Model 105A does not clearly teach the computer is adapted to determine a frequency dependent attenuation from the measurement.

Bjork teaches the computer (14) is adapted to determine a frequency dependent attenuation from the measurement (col. 2, ln. 52-57; col. 3, ln. 23-30; col. 3, ln. 31 to col. 5, ln. 34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Bjork into the teachings of Beierle incorporated with Harris Model 105A in order to provide a test apparatus for testing cable for digital applications from one end of the cable, so as to eliminate additional personnel and reduce cost associated with determining the quality of the communication cable.

Beierle incorporated with Harris Model 105A and Bjork does not explicitly teach predicting the data rate for the customer line from the measurements.

Lechleider teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information from a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5,

ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Lechleider into the teachings of Beierle incorporated with Harris Model 105A and Bjork in order to reduce the testing time.

Consider claims 30, 38. Lechleider further teaches a method of speed qualifying a customer line for data transmission (abstract), comprising identifying a proxy line in a cable carrying the customer line (the use of information from a particular line/loop to provide DSL service to the other lines/loops that are in the same geographic area/location or a particular town with the particular line/loop; fig. 1; col. 5, ln. 42 to col. 7, ln. 23; col. 7, ln. 24 to col. 8, ln. 22); performing one-ended electrical measurements on the proxy line (fig. 1; col. 5, ln. 42 to col. 7, ln. 23); and predicting the data rate for the customer line from the measurements (processor 119 may also be used to create a list of subscriber loops meeting ADSL band deployment criteria. The list would then be available to a service provider and may be tailored to particular geographic areas, i.e., all the user in a particular town; col. 7, ln. 40-47; col. 7, ln. 61 to col. 8, ln. 22).

17. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beierle (6,084,946) in view of Bjork et al (5,128,619).

Consider claim 44. Beierle teaches a method of determining the attenuation of a customer's telephone line, comprising performing a plurality of one-ended electrical measurements of frequency dependent admittances of the customer's telephone line, the measurements being performed in a first frequency range (col. 2, ln. 47-58; col. 4, ln. 25 to col. 5, ln. 18; col. 6, ln. 25 to col. 8, ln. 36); processing the measurements by a set of logical decision trees (col. 6, ln. 25 to col. 8, ln. 36); and adjusting values of a frequency-dependent values (col. 6, ln. 48 to col. 8, ln. 36) for an average telephone line to predict a qualification for digital signal transmission (i.e., changing of any values in equations (1)-(8) would predict a qualification for digital signal transmission of the customer's telephone line) of the customer's telephone line in a second frequency range (xDSL range; e.g., determining whether the wire pair is qualified or not qualified for carrying xDSL), the act of adjusting being responsive to results from the logical decision trees.

Beierle does not clearly teach the computer is adapted to determine a frequency dependent attenuation from the measurement.

Bjork teaches the computer (14) is adapted to determine a frequency dependent attenuation from the measurement (col. 2, ln. 52-57; col. 3, ln. 23-30; col. 3, ln. 31 to col. 5, ln. 34. Furthermore, changing of any values in the equations (col. 3, ln. 45 to col. 4, ln. 39) would predict a qualification for digital signal transmission of the customer's telephone line).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Bjork into the teachings of Beierle in order to provide a test apparatus for testing cable for digital applications from one end of the cable, so as to eliminate additional personnel and reduce cost associated with determining the quality of the communication cable.

18. Claim 45 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beierle (6,084,946) in view of Bjork et al (5,128,619) as applied to claim 44 above, and further in view of Nagato (5,400,321).

Consider claims 5, 14, 37. Beierle in view of Bjork does not clearly teach that the act of measuring includes finding at least of Y_{tr}, Y_{rg} and Y_{tg} for the customer line.

Nagato teaches the act of measuring includes finding at least of Y_{tr}, Y_{rg} and Y_{tg} for the customer line (see fig. 2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Nagato into the teachings of Beierle in view of Bjork in order to accurately and remotely detect a fault on a subscriber line.

Allowable Subject Matter

19. Claims 46-57 are allowed.

Conclusion

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc Nguyen whose telephone number is (703) 308-7527.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Kuntz, can be reached on (703) 305-4708.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-6306 or (703) 308-6296 (Group's Fax numbers)
(703) 746-7251 (Examiner's Fax number, only for proposed amendment)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

December 6, 2002

DUC NGUYEN
PRIMARY EXAMINER